Complete Summary

TITLE

Diabetes mellitus: hospital admission rate for long-term complications.

SOURCE(S)

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 59 p.(AHRQ Pub; no. 02-R0203).

AHRQ quality indicators. Prevention quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 22 p.

Measure Domain

PRIMARY MEASURE DOMAIN

Population Health

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Access

Brief Abstract

DESCRIPTION

This measure is used to assess the number of admissions for diabetic long-term complications per 100,000 population.

As a Prevention Quality Indicator (PQI), diabetes long-term complication rate is not a measure of hospital quality, but rather one measure of outpatient and other health care. Rates of diabetes may vary systematically by area, creating bias for this indicator. Examination of both inpatient and outpatient data may provide a more complete picture of diabetes care.

RATIONALE

Prevention is an important role for all health care providers. Providers can help individuals stay healthy by preventing disease, and they can prevent complications of existing disease by helping patients live with their illnesses. To fulfill this role, however, providers need data on the impact of their services and the opportunity to compare these data over time or across communities. Local, State, and Federal policymakers also need these tools and data to identify potential access or quality-of-care problems related to prevention, to plan specific interventions, and to evaluate how well these interventions meet the goals of preventing illness and disability.

While these indicators use hospital inpatient data, their focus is an outpatient health care. Except in the case of patients who are readmitted soon after discharge from a hospital, the quality of inpatient care is unlikely to be a significant determinant of admission rates for ambulatory care sensitive conditions. Rather, the Prevention Quality Indicators (PQIs) assess the quality of the health care system as a whole, and especially the quality of ambulatory care, in preventing medical complications. As a result, these measures are likely to be of the greatest value when calculated at the population level and when used by public health groups, State data organizations, and other organizations concerned with the health of populations.

These indicators* serve as a screening tool rather than as definitive measures of quality problems. They can provide initial information about potential problems in the community that may require further, more in-depth analysis.

Long-term complications of diabetes mellitus include renal, eye, neurological, and circulatory disorders. Long-term complications occur at some time in the majority of patients with diabetes to some degree.

Proper outpatient treatment and adherence to care may reduce the incidence of diabetic long-term complications.

*The following caveats were identified from the literature review for the "Diabetes Long-term Complications Admission Rate" indicator:

- *Proxy*[a]: Indicator does not directly measure patient outcomes but an aspect of care that is associated with the outcome; thus, it is best used with other indicators that measure similar aspects of care.
- *Confounding bias*[a]: Patient characteristics may substantially affect the performance of the indicator; risk adjustment is recommended.
- *Easily manipulated*[a]: Use of the indicator may create perverse incentives to improve performance on the indicator without truly improving quality of care.
- *Unclear benchmark*[b]: The "correct rate" has not been established for the indicator; national, regional, or peer group averages may be the best benchmark available.

Refer to the original measure documentation for further details.

Note:

a - The concern is theoretical or suggested, but no specific evidence was found in the literature.

b - Indicates that the concern has been demonstrated in the literature.

PRIMARY CLINICAL COMPONENT

Diabetes mellitus; long-term complications (renal, eye, neurological, circulatory); hospital admission rates

DENOMINATOR DESCRIPTION

Population in Metro Area or county, age 18 years and older

NUMERATOR DESCRIPTION

Discharges, age 18 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal diagnosis code* for long-term complications of diabetes (renal, eye, neurological, circulatory, or complications not otherwise specified)

Exclude cases:

- Transferring from another institution
- Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium)
- MDC 15 (newborn and other neonates)

*Refer to the Technical Specifications document for specific ICD-9-CM codes.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE VALUE OF MONITORING THE ASPECT OF POPULATION HEALTH

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Monitoring health state(s)
Variation in health state(s)

EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 59 p.(AHRQ Pub; no. 02-R0203).

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Monitoring health state(s)
National reporting

Application of Measure in its Current Use

CARE SETTING

Ambulatory Care
Community Health Care

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Advanced Practice Nurses
Physician Assistants
Physicians
Public Health Professionals

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Counties or Cities

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

Rates of diabetes are higher in black, Hispanic, and especially Native American populations than in other ethnic groups. Hyperglycemia appears to be particularly frequent among Hispanic and Native American populations.

EVIDENCE FOR ASSOCIATION WITH VULNERABLE POPULATIONS

Harris MI. Diabetes in America: epidemiology and scope of the problem. Diabetes Care1998 Dec;21 Suppl 3:C11-4. PubMed

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Timeliness

Data Collection for the Measure

CASE FINDING

Both users and nonusers of care

DESCRIPTION OF CASE FINDING

Population in Metro Area or county, age 18 years and older

DENOMINATOR SAMPLING FRAME

Geographically defined

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
Population in Metro Area or county, age 18 years and older

Exclusions
Unspecified

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are not equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Patient Characteristic

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Discharges, age 18 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal diagnosis code* for long-term complications of diabetes (renal, eye, neurological, circulatory, or complications not otherwise specified)

*Refer to the Technical Specifications document for specific ICD-9-CM codes.

Exclusions

Exclude cases:

- Transferring from another institution
- Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium)
- MDC 15 (newborn and other neonates)

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Institutionalization

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Does not apply to this measure

TYPE OF HEALTH STATE

Adverse Health State

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

A lower score is desirable

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)
Risk adjustment method widely or commercially available

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by areas (Metro Areas or counties), age groups, race/ethnicity categories, and sex.

Risk adjustment of the data is recommended using age and sex.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a

quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 1 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Prevention Quality Indicators (PQI). Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 59 p.(AHRQ Pub; no. 02-R0203).

Identifying Information

ORIGINAL TITLE

Diabetes long-term complications admission rate (PQI 3).

MEASURE COLLECTION

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

MEASURE SET NAME

Agency for Healthcare Research and Quality (AHRQ) Prevention Quality Indicators

DEVELOPER

Agency for Healthcare Research and Quality

FUNDING SOURCE(S)

Agency for Healthcare Research and Quality (AHRQ)

COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators are in the public domain and the specifications come from multiple sources, including the published and unpublished literature, users, researchers, and other organizations. AHRQ as an agency is responsible for the content of the indicators.

FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

None

ENDORSER

National Quality Forum

INCLUDED IN

National Healthcare Disparities Report (NHDR)
National Healthcare Quality Report (NHQR)

ADAPTATION

This indicator was an original Healthcare Cost and Utilization Project Quality Indicator (HCUP QI).

PARENT MEASURE

Diabetes long-term complication (Agency for Healthcare Research and Quality)

RELEASE DATE

2001 Oct

REVISION DATE

2008 Feb

MEASURE STATUS

This is the current release of the measure.

This measure updates previous versions:

- AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 3.0a]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2006 Feb 20. 58 p. (AHRQ Pub; no. 02-R0203).
- AHRQ quality indicators. Prevention quality indicators: technical specifications [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 22 p.

SOURCE(S)

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 59 p.(AHRQ Pub; no. 02-R0203).

AHRQ quality indicators. Prevention quality indicators: technical specifications [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Feb 29. 22 p.

MEASURE AVAILABILITY

The individual measure, "Diabetes Long-Term Complications Admission Rate (PQI 3)," is published in "AHRQ Quality Indicators. Guide to Prevention Quality Indicators" and "AHRQ Quality Indicators. Prevention Quality Indicators: Technical Specifications." These documents are available in Portable Document Format (PDF) from the Prevention Quality Indicators Download page at the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Prevention quality indicators: software documentation [version 3.2] - SAS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 32 p. This document is available in Portable Document Format (PDF) from the AHRQ Quality Indicators Web site.
- AHRQ quality indicators. Software documentation: Windows [version 3.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar 10. 99 p. This document is available in PDF from the AHRQ Quality Indicators Web site.
- Prevention quality indicators (PQI): covariates [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 17 p. This document is available in PDF from the AHRQ Quality Indicators Web site.
- Prevention quality indicators (PQI): covariates (age only) [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 17 p. This document is available in PDF from the AHRQ Quality Indicators Web site.
- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available in PDF from the AHRQ Quality Indicators Web site.
- UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4). This document is available in PDF from the AHRQ Quality Indicators Web site.
- HCUPnet. [internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 [accessed 2007 May 21]. [Various pagings]. HCUPnet is available from the AHRQ Web site. See the related QualityTools summary.

NQMC STATUS

This NQMC summary was completed by ECRI on December 19, 2002. The information was verified by the Agency for Healthcare Research and Quality on January 9, 2003. This NQMC summary was updated by ECRI Institute on April 6, 2004, February 18, 2005, February 27, 2006, June 15, 2007 and again on November 26, 2008.

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